



**FLANN MICROWAVE**

## Sub-Millimetre Seamless Waveguide

### Features

- **WM-2032 (WR8) to WM-250 (WR1.0)**
- **Smallest aperture size 250  $\mu\text{m}$  x 125  $\mu\text{m}$**
- **IEEE std 1785 to Class 1.0**
- **Seamless construction**
- **Ultra-thin wall (0.25mm) available**



Flann are proud to announce a new range of seamless precision waveguide operating up to 1.1 THz.

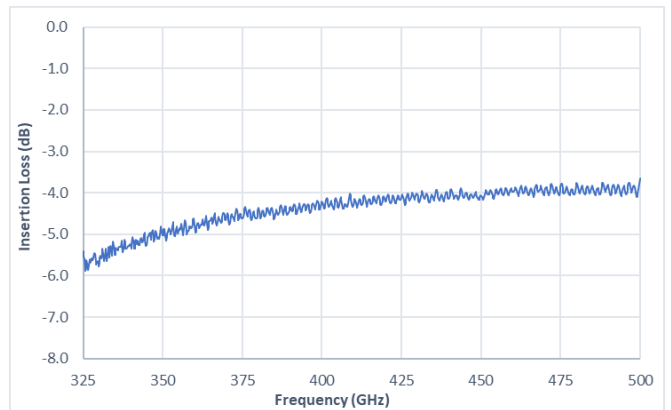
Standard seamless waveguide is not commercially available above 220 GHz resulting in the necessity to machine waveguide instruments and assemblies. While this is suitable in some instances, the higher mass and bulk of the instrument can cause difficulties in critical scenarios where lower mass or a more complex waveguide structure is required.

Our bespoke process allows the seamless waveguide to be manufactured up to a length of 400 mm in a choice of thin or ultra-thin wall thickness. Available materials are copper or nickel with an internal surface finish  $<0.2\mu\text{m Ra}$ .

Suitable for many waveguide applications which require straights, bends, twists, or custom built assemblies comprising of a combination of these.

RF performance matches or exceeds that of commercially available standard waveguide where available and is comparable to that of precision machined waveguide of split-block construction.

This capability allows the potential to create custom instruments, reducing the number of mating interfaces and resulting in further improvement to RF performance in comparison to COTS (commercial off the shelf) solutions. When combined with HRC-mini style flanges, its low mass enables the perfect alternative to machined waveguide for use in weight critical applications.



Insertion loss plot of a 100mm WM570 Copper waveguide straight

### Applications

6G systems  
Astronomical research  
Terahertz imaging  
Characterisation of materials  
Test and Measurement

### Related Products

Series 246 - Near Field Probe  
Series 441 - Waveguide Straight, Flange to Flange Adapter  
Series 450 - Waveguide Twist  
Series 460/470 - Waveguide Bend, E & H-Plane  
Series 480 - Waveguide Assembly

#### **FLANN MICROWAVE LTD.**

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## Sub-Millimetre Seamless Waveguide

| WG    | R    | WR  | Frequency (GHz) | Aperture dimensions (mm) | Insertion Loss per 100 mm (dB) | Termination VSWR (max) |
|-------|------|-----|-----------------|--------------------------|--------------------------------|------------------------|
| 28    | 1200 | 8   | 90 - 140        | 2.032 x 1.016            | 0.8                            | 1.06                   |
| 29    | 1400 | 6   | 110 - 173       | 1.651 x 0.826            | 1.15                           | 1.07                   |
| 30    | 1800 | 5   | 140 - 220       | 1.295 x 0.648            | 1.7                            | 1.09                   |
| 31    | 2200 | 4   | 170 - 261       | 1.100 x 0.550            | 2.2                            | 1.11                   |
| 32    | 2600 | 3   | 217 - 330       | 0.870 x 0.440            | 3.1                            | 1.15                   |
| WM710 |      | 2.8 | 260 - 400       | 0.710 x 0.355            | 4.4                            | 1.17                   |
| WM570 |      | 2.2 | 330 - 500       | 0.570 x 0.285            | 6.1                            | 1.22                   |
| WM470 |      | 1.9 | 400 - 600       | 0.470 x 0.235            | 8.3                            | 1.33                   |
| WM380 |      | 1.5 | 500 - 750       | 0.380 x 0.190            | 11.5                           | 1.45                   |
| WM310 |      | 1.2 | 600 - 900       | 0.310 x 0.155            | 16.6                           | 1.70                   |
| WM250 |      | 1.0 | 750 - 1100      | 0.250 x 0.125            | 23.0                           | 2.00                   |

### Custom Design

Custom built instruments can be supplied; please contact the sales team for more information [sales@flann.com](mailto:sales@flann.com)

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